ECONOMIC COMMENTARY

Alberta's Oil and Gas Supply Chain Industry

December 11, 2013

Highlights:
Over the past 25 years, the two fastest growing manufacturing sectors in Alberta are the industrial machinery and fabricated metals sectors. Their success is closely tied to Alberta's oil and gas sector.

Alberta Government

Overview of the Oil and Gas Supply Chain Industry

The importance of the Oil and Gas Supply Chain (OGSC) industry to Alberta's energy sector can be illustrated by examining Alberta's Input - Output tables. In 2010, Alberta's oil and gas sector purchased an estimated $4 billion in manufactured products from domestic and international companies in the OGSC industry[1] (Chart 1):

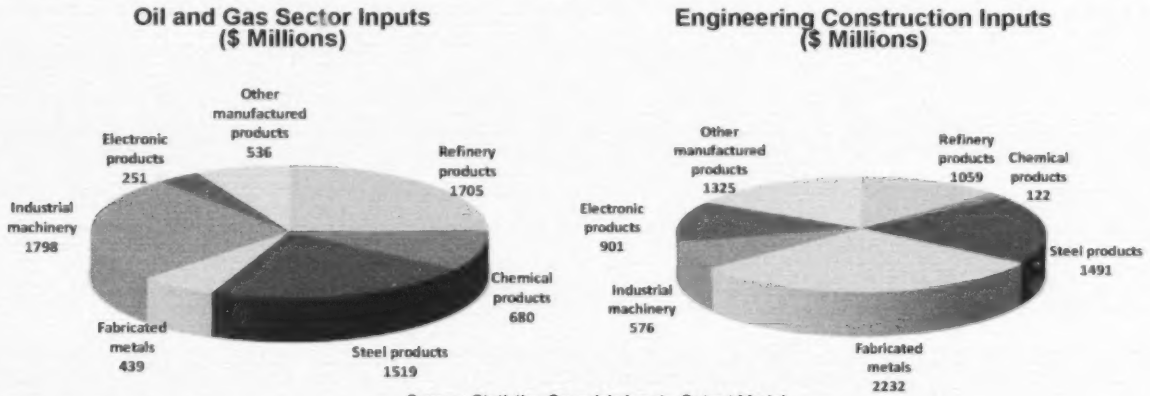
- $1.8 billion in industrial machinery (such as mining and oil and gas field machinery and equipment);
- $1.5 billion in steel products (mainly iron and steel pipes and tubes);
- $438 million in fabricated metals (such as forging and stamping and metal valves and pipe fittings);
- $250 million in electronic products (mainly measuring and controlling devices).

Moreover, Alberta's engineering construction sector, which derives most of its revenues from oil and gas projects, purchased an additional $5.2 billion (Chart 1):

- $2.2 billion in fabricated metals (boilers and tanks and metal valves and pipe fittings);
- $1.5 billion in steel products (iron and steel pipes and tubes);
- $900 million in electronic products (measuring and controlling devices);
- $576 million in industrial machinery (mining and oil and gas field machinery and equipment and turbines).

Although some of the demand for the above products is met by Alberta companies, imports from other provinces and especially other countries likely account for at least one-half of the Alberta demand for these products.

Chart 1
Manufactured Goods Purchased by Alberta's Oil and Gas and Engineering Construction Sectors



Source: Statistics Canada's Input - Output Model

[1] The OGSC industry includes the following durable goods manufacturing sectors: fabricated metals; industrial machinery; steel products; electronic products

Capital Investment in the Oil and Gas Sector

Capital investment in Alberta's oil and gas sector has been very strong over the past decade, averaging more than $35 billion a year since 2005. Prior to 2008 most of the investment was taking place in the conventional oil and gas sector, but oil sands investment has outstripped conventional oil and gas investment in recent years (Chart 2). Almost all of the capital investment by the conventional sector is in construction spending. Although construction spending also dominates in the oil sands sector, investment in industrial machinery and equipment is also strong. Capital investment in machinery and equipment has averaged about $5 billion a year since 2005 (Chart 3).

Repair spending on machinery and equipment by the oil sands sector has been rising sharply over the past decade and has averaged about $2.5 billion a year between 2008 and 2011 (Chart 3). As oil sands production is expected to surge over the next decade repair spending on machinery and equipment will also continue to grow at a rapid pace and will eventually overtake capital investment on machinery and equipment.

Chart 2
Oil & Gas Capital Investment in Alberta

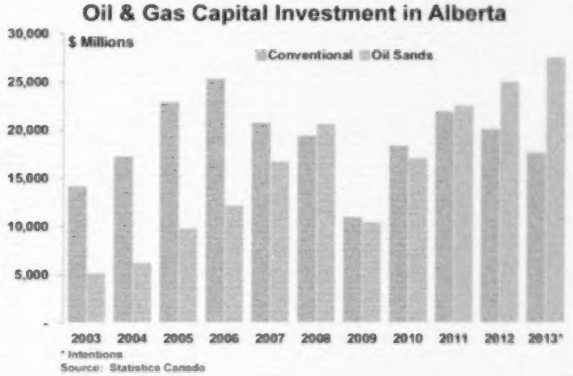
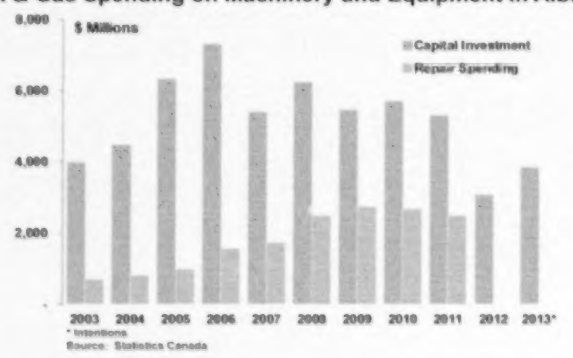


Chart 3
Oil & Gas Spending on Machinery and Equipment in Alberta



Output Growth of Alberta's Fabricated Metals and Industrial Machinery Sectors

Between 2007 and 2012, Alberta's fabricated metals and industrial machinery sectors were the fastest growing manufacturing sectors in the province with output growth of 16% over that period, compared with a 1% decline in Gross Domestic Product (GDP) for Alberta's manufacturing sector as a whole. This is especially surprising considering that these two sectors were hard-hit by the global economic crisis: GDP for fabricated metals fell 17% in 2009 and industrial machinery output declined 24%. They have rebounded since then as GDP for metal fabrication rose 33% between 2009 and 2012 and for industrial machinery 52%.

Even though both GDP and revenues showed positive growth between 2011 and 2012, monthly revenues started to decline in early 2012 and weakened further in the first half of 2013. However, sector revenues (value of shipments) recovered strongly in the third quarter of 2013 (Chart 4) because of strong growth for the industrial machinery sector, especially in the mining and oil and gas field machinery and equipment and the pumps and compressors sub-sectors.

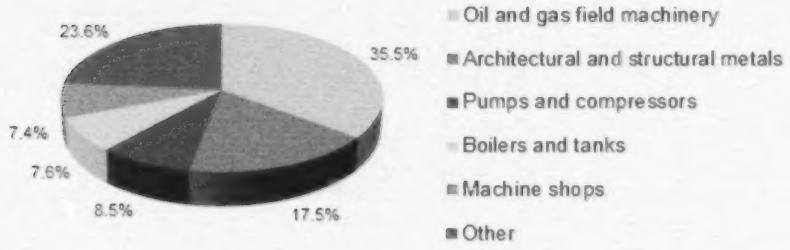
Chart 4
Value of Shipments in Machinery and Fabricated Metals Industry

Source: Statistics Canada

Between 2002 and 2012 the value of shipments (revenues) for these two sectors more than doubled to $14.5 billion. The sectors' largest sub-sectors on a revenue basis are:

- Oil and gas field machinery: $5.1 billion in 2012; more than quadrupled in size between 2002 and 2012
- Architectural and structural metals: $2.5 billion in 2012; more than doubled between 2002 and 2012
- Pumps and compressors: $1.2 billion in 2012; nearly doubled between 2002 and 2012
- Boilers and tanks: $1.1 billion in 2012; nearly doubled between 2002 and 2012
- Machine shops: $1.1 billion in 2012; rose nearly 150% between 2002 and 2012

Chart 5
Revenue Shares in 2012 for Major Sub-Sectors



Although not included in the above estimates, Alberta's measuring and controlling devices (industrial electronics) sub-sector has seen strong growth in recent years. Revenues reached $547 million in 2012, a 70% increase from 2002. However, all of this growth took place in 2012 as revenues surged 68% between 2011 and 2012 and are on track for another year of solid growth in 2013. Alberta's primary steel products sector has annual revenues of at least $1 billion, most of which is derived from the manufacturing of iron and steel pipes and tubes.

Between 2002 and 2012, the number of employees in the fabricated metals and industrial machinery sectors grew by 44% or nearly 13,500 to 44,327[2]. The industry's workforce grew by 13,360 between 2002 and 2008 to 44,416, and then fell by 7,600 over the next two years. However, employment rebounded by about 7,500 jobs between 2010 and 2012.

Where do Alberta's Fabricated Metals and Industrial Machinery get shipped to?

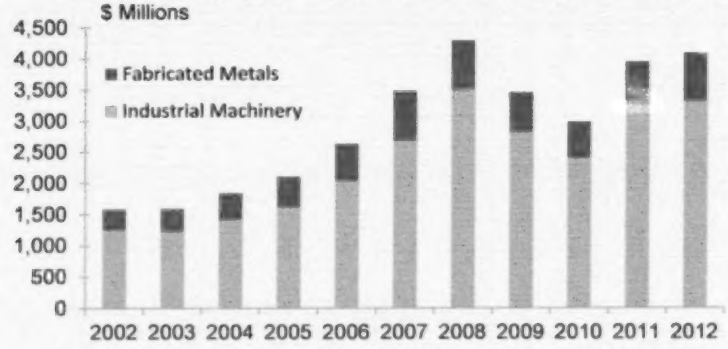
Approximately 60% of the sector's output is shipped to customers within the province, mainly in the oil sands and conventional oil and gas sectors. A further 15% is shipped to customers in other provinces.

At least one-quarter of this sector's production is exported internationally. International exports of the fabricated metals and industrial machinery sectors rose 171% between 2002 and 2008 to $4.3 billion (Chart 6). The industry's exports fell by 31% between 2008 and 2010, but the export decline was reversed in 2011 as exports increased by 32% compared to 2010. Exports increased by a further 4% in 2012 to $4.1 billion, as fabricated metals exports rose 14%. In the first nine months of 2013, exports of machinery and fabricated metals were about 10% lower than in the same period of 2012 because of sharp declines for exports of boilers and tanks, architectural and structural metals, and especially oil and gas field machinery to the

[2] All employment estimates are from Statistics Canada Table 281-0023 - Employment (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System

US. The fabricated metals and industrial machinery sectors' largest export markets are the US, with a 63% export share in 2012, followed by Australia (4%), Russia and South Korea.

Chart 6
Alberta's Exports of Machinery and Fabricated Metals



Sources: Statistics Canada and Alberta Enterprise and Advanced Education